# A Preliminary Phytochemical Survey in the British Solomon Islands

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During 1964 and 1965, while the author was engaged on a project at Honiara, capital of the British Solomon Islands, the opportunity was taken to carry out a preliminary survey of the flora for the presence of alkaloids and saponins.

The Forestry Department at Honiara is actively engaged in establishing a herbarium, but all the specimens collected for the herbarium are placed in ethanol. Such specimens are of no value for chemical tests.

It was necessary, therefore, for the author to collect plant material for this survey. Most of this material came from the main island of Guadalcanal. A sample of most of the specimens collected was lodged with the Herbarium at Honiara under the author's name and collection number. This number is listed in the Table of Results, so that any interested person may obtain, by application to the Chief Forestry Officer, Honiara, verification of the genus and species and the date and place of collection.

The author is indebted to Dr. T. C. Whitmore, Forest Botanist, and Mr. G. Dennis, Herbarium Officer, both of the Forestry Department, Honiara, B.S.I.P., for their assistance in the problems of nomenclature, and to Mr. J. Berry of Honiara, who introduced him to jungle trails.

## PRELIMINARY TESTING

Prior to departure from Sydney, some preliminary work was carried out on Australian flora to check the methods of extraction and the precipitating reagents for spot-testing. Following suggestions by Henry (1929), chopped-up plant tissue was extracted with mildly alkaline ether, petrol ether, chloroform, and ethanol, and also with Prollius fluid and hydrochloric acid (1% aqueous).

Of these solvents hydrochloric acid gave most consistently the best concentration of alkaloid. It also had the great advantage of simplicity for field laboratory work, and so the decision was made to use this solvent exclusively. Perhaps something was lost in so doing, but it is noted that Swanholm et al. (1960) state that the "information obtained by digestion with Prollius fluid appeared insufficient to warrant continued use."

Visual estimation of the amount of precipitate formed from the extract by a reagent seemed to be the most suitable method for field work. This method was used by Webb (1949) and Swanholm et al. (1959). A review of these works, and of those of Henry (1929) and Bamford (1947), indicated that some alkaloids do not precipitate with some reagents. For example, betaine and caffeine do not show a precipitate with Mayer's reagent. Moreover, because no one reagent is specific for alkaloids, it was decided to use a selection of reagents, seven in all. While this is a greater number than is usually employed for such testing, the extra work involved was negligible.

The following reagents were chosen: Mayer's (potassio-mercuric iodide), Dragendorff's (bismuth-potassium iodide), Hager's (picric acid, 1% aqueous), Wagner's (iodine in potassium iodide), Sonnenschein's (phosphomolybdic acid), Scheibler's (phosphotungstic acid), Marme's (cadmium-potassium iodide).

In a series of preliminary tests on plant material known to be positively and negatively alkaloidal, the reagents appeared to work satisfactorily.

For the extraction of saponins boiling water was used. The extract was filtered, cooled, and subjected to the froth test. The extract was then made alkaline with sodium carbonate and again subjected to the froth test. The Liebermann-Burchard test was applied for further confirmation in some cases.

## METHODS USED

### 1. *Extraction of Alkaloids*

Fifty ml of dilute hydrochloric acid (1% aqueous) were placed in a 250-ml beaker on a

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controlled-temperature hot-plate and maintained between 70° and 80°C. Sufficient chopped tissue to make a loose slurry (about 4–5 gm) was added to the acid and the temperature was maintained for 2 hours, with occasional stirring. The hot liquid was then filtered off and cooled. This gave 15–20 ml of fluid for testing.

In the main, leaf and stem tissue was used, although in some cases other parts of the plant were available.

2. *Testing for Alkaloids*

Four drops of the acid extract were placed in a watchglass and 2 drops of the reagent were added. The contents were mixed by gentle agitation and left for 10 minutes. The amount of precipitate formed in each watchglass was then estimated visually and a rating recorded for each. The ratings used were as follows:

0–no precipitate.
1–slight precipitate; usually requires close examination to see.
2–medium precipitate; readily discernible, although not prolific.
3–heavy precipitate; abundant.
4–extra-heavy precipitate; very flocculant, filling whole area covered by liquid.

After some experience, it was possible to disregard those precipitates which looked peculiar. For example, Wagner's reagent usually gave red or reddish precipitates and any other colours were suspect.

The plant material was extracted and tested as soon as possible after removing it from its parent plant. The normal delay was not greater than 48 hours, but in a few cases it was 96 hours.

3. *Extraction of Saponins*

A small quantity (1–2 gm) of chopped tissue was placed in about 25 ml of water. The mixture was brought to the boiling point and then allowed to cool for about 4 hours. The resulting extract was then filtered and the tissue discarded.

4. *Testing for Saponins*

About 10 ml of the filtered extract was shaken for about 30 seconds and allowed to stand undisturbed. The time taken for the froth, if any, to disappear was noted. If the froth persisted after 30 minutes, this was read as "saponin positive."

Another 10-ml portion of filtered extract was made alkaline with sodium carbonate and again shaken. If a froth persisted after 30 minutes, this was considered as "positive," and probably indicative of diterpene or triterpene acid.

## RESULTS

### *Alkaloids*

Using the method of estimation given above, it is clear that a maximum score of 28 is possible, and it was, in fact, obtained from some extracts. On the other hand, a score of 0 was not uncommon.

To set a score above which the plant is alkaloid positive and below which it is alkaloid negative is tempting, but this would simplify the interpretation. If a plant shows some precipitate in all seven reagents, then it very likely contains alkaloid, perhaps only in small quantities due to the season of the year or to the locality in which it was growing.

Unfortunately, phosphomolybdic and phosphotungstic acids are not as selective for alkaloidal substances as could be desired. In extreme cases the total score obtained for a plant was made up from its reaction to only these two reagents. This clearly rates as alkaloid negative, because there was no precipitate formed with any of the other reagents. In future surveys of this type, these two reagents could well be omitted without great loss. However, in Table 1 the precipitate scores from these two reagents have been included.

In Table 1 the plants tested are arranged alphabetically by families. The genus and the species are given where known; otherwise the author's collection number appears, in anticipation that identification will ultimately be made at the Herbarium in Honiara.

Names in parentheses are native names. The place and month of collection are also shown, together with the score and the number of reagents which produced precipitates (for example, 12(5) means a score of 12 derived from 5 reagents). The native names have been taken from the check list by Whitmore (1964). These are by no means authoritative and are offered as a guide only.

TABLE 1

RESULTS OF TESTS FOR ALKALOIDS AND SAPONINS IN PLANTS OF THE SOLOMON ISLANDS

| PLANT TESTED | COLLECTION NUMBER | PLACE[1] AND MONTH | ALKALOID SCORE | SAPONINS | | |
|---|---|---|---|---|---|---|
| | | | | WATER | ALKALI | L/B |
| ACANTHACEAE | | | | | | |
| *Pseuderanthemum* sp. (malmalohenga) | 102 | H, Mar | 22(7) | — | + | |
| *Pseuderanthemum* sp. | 112 | H, Mar | 17(6) | — | — | |
| *Eranthemum* sp. | 223 | G, Aug | 18(6) | — | — | |
| *Graptophyllum* sp. | 232 | P, Sep | 15(7) | — | — | |
| *Clerodendron inerme* | 228 | B, Sep | 20(7) | — | — | |
| ALANGIACEAE | | | | | | |
| *Alangium javanicum* | 176 | M, Jul | 5(2) | — | — | |
| AMARANTACEAE | | | | | | |
| *Amarantus* sp. | 183 | MA, Jul | 24(7) | + | + | |
| *Amarantus* sp. | 263 | V, Dec | 18(7) | | | |
| ANACARDIACEAE | | | | | | |
| *Semecarpus* sp. | 198 | W, Aug | 0(0) | — | — | |
| *Mangifera* sp. | 251 | CE, Apr | 5(3) | — | — | |
| *Mangifera indica* leaf | 258 | G, Dec | 1(1) | — | — | |
| bark | | | 2(2) | | | |
| APOCYANACEAE | | | | | | |
| *Cerbera* cf *floribunda* (aitongatonga) | 122 | SL, Apr | 3(2) | | | purple |
| *Thevetia peruviana* leaf | 136 | H, May | 1(1) | — | — | |
| *Alstonia spectabilis* leaf | 137 | H, May | 15(7) | — | — | |
| bark | | | 24(7) | | | |
| *Alstonia scholaris* | 156 | H, Jun | 18(7) | — | — | |
| cf *Alyxia* | 203 | H, Aug | 5(5) | — | — | |
| ARACEAE | | | | | | |
| *Monsteria* sp. | 214 | H, Aug | 15(7) | — | — | |
| ARALIACEAE | | | | | | |
| Polyscias (baro bara) | 208 | H, Aug | 10(5) | + | — | |
| *Delarbia collina* | 213 | H, Aug | 5(2) | — | — | |
| Unknown | 289 | SL, May | 5(4) | | | |
| ARISTOLOCHIACEAE | | | | | | |
| *Aristolochia* sp. | 282 | P, May | 15(7) | — | — | |
| *Aristolochia tagalla* | 168 | SL, Jun | 7(5) | — | — | |
| ASCLEPIADACEAE | | | | | | |
| *Dischidia* sp. | 115 | H, Mar | 5(2) | | | |
| *Hoya* sp. | 301 | G, Jun | 2(2) | | | |
| BIGNONIACEAE | | | | | | |
| *Spathodea campanulata* | 284 | H, May | 3(2) | | | |
| BORAGINACEAE | | | | | | |
| *Cordia subcordata* | 299 | V, Jun | 2(1) | + | — | |
| *Carmona retusa* | 276 | W, Apr | 0(0) | — | — | |
| Unknown | 303 | G, Jun | 15(7) | — | — | |
| BURSERACEAE | | | | | | |
| *Canarium* sp. | 287 | SL, May | 4(3) | — | — | |

TABLE 1 (*continued*)

| PLANT TESTED | COLLECTION NUMBER | PLACE[1] AND MONTH | ALKALOID SCORE | SAPONINS | | |
|---|---|---|---|---|---|---|
| | | | | WATER | ALKALI | L/B |
| CASUARINACEAE | | | | | | |
| *Casuarina* sp. | 157 | H, Jun | 6(4) | | | |
| COMBRETACEAE | | | | | | |
| *Terminalia* sp. | 101 | H, Mar | 12(6) | — | — | |
| *Terminalia catappa* | 192 | Giz, Jul | 3(2) | — | — | |
| COMPOSITAE | | | | | | |
| *Mikana scandens* (komboro) | 135 | H, Apr | 2(2) | | | |
| *Wedelia biflora* | 169 | SL, Jun | 3(2) | — | — | |
| *Wedelia biflora* | 190 | Giz, Jul | 9(4) | — | — | |
| *Corchorus* sp. | 171 | SL, Jun | 3(3) | + | + | pink |
| *Emilia sonchifolia* | 179 | M, Jul | 15(7) | — | — | |
| *Vernonia* sp. | 293 | H, Jun | 2(2) | + | + | |
| *Mikania cordata* | 307 | SL, Aug | 18(7) | — | — | |
| CONVOLVULACEAE | | | | | | |
| *Ipomea pes-caprae* | 111 | G, Mar | 7(4) | | | |
| *Merremia pacifica* var. *ooststeroom* (tambui) | 181 | M, Jul | 9(6) | — | — | |
| Unknown | 292 | H, Jun | 3(3) | — | — | |
| CUCURBITACEAE | | | | | | |
| *Trichosanthes* sp. | 252 | CE, Apr | 12(7) | — | + | |
| Unknown | 302 | G, Jun | 3(2) | — | — | |
| DIOSCORIACEAE | | | | | | |
| cf *Dioscorea* | 128 | MtA, Apr | 2(1) | — | + | |
| *Dioscorea* sp. | 278 | H, Apr | 12(7) | + | — | |
| EUPHORBIACEAE | | | | | | |
| *Acalypha* sp. | 100 | H, Mar | 21(7) | — | + | green |
| *Homolanthus novoguineensis* | 279 | M, Apr | 5(3) | — | + | |
| cf *Breynia* | 212 | H, Aug | 1(1) | — | — | |
| *Croton* sp. | 264 | H, Jan | 16(6) | | | |
| *Euphorbia* sp. | 162 | G, Jun | 4(3) | — | — | |
| *Breynia cernua* | 234 | G, Sep | 11(5) | | | |
| *Breynia cernua* | 246 | W, Oct | 24(7) | — | — | |
| *Macaranga tanarius* | 154 | H, Jun | 9(6) | — | — | |
| *Macaranga tanarius* (female) | 206 | G, Aug | 3(2) | — | — | |
| *Macaranga mecostylis* | 210 | H, Aug | 14(6) | — | — | |
| *Macaranga aleuritoides* | 161 | B, Jun | 7(5) | — | — | |
| *Ricinus* sp. | 235 | G, Sep | 20(7) | — | — | |
| *Securinega samoana* | 291 | Auk, Jun | 5(3) | — | + | |
| *Exoecaria agallocha* | 273 | W, Mar | 4(3) | — | — | |
| *Manihot utilis* leaf | 151 | M, Jun | 15(7) | — | — | |
| (bia) fruit | | | 17(7) | | | |
| *Securinega samoana* | 256 | G, Nov | 9(4) | — | — | |
| *Mallotus* sp. | 253 | CE, Nov | 16(7) | — | + | |
| Unknown | 298 | V Jun | 7(3) | + | + | |
| FLAGELLARIACEAE | | | | | | |
| *Flagellaria indica* leaf | 173 | SL, Jun | 14(6) | — | — | |
| fruit | | | 12(7) | | | |

TABLE 1 (*continued*)

| PLANT TESTED | COLLECTION NUMBER | PLACE[1] AND MONTH | ALKALOID SCORE | SAPONINS | | |
|---|---|---|---|---|---|---|
| | | | | WATER | ALKALI | L/B |
| GOODENIACEAE | | | | | | |
| *Scaevola lutescens* | 164 | G, Jun | 9(5) | + | | red |
| *Scaevola* cf *taccada* | 257 | G, Nov | 5(3) | — | — | |
| LABIATAE | | | | | | |
| *Leucas lavandulifolia* | 166 | SL, Jun | 9(6) | + | — | purple |
| Unknown | 200 | W, Aug | 4(2) | — | — | |
| LAURACEAE | | | | | | |
| *Persea americana* | 119B | H, Mar | 11(7) | — | — | |
| *Cassytha filiformis* | 216 | V, Aug | 20(7) | — | | |
| LEGUMINOSAE | | | | | | |
| *Crotalaria* sp. leaf | 105 | G, Mar | 28(7) | — | — | |
| part-ripe seeds | | | 26(7) | | | |
| *Tephrosia* sp. | 109 | G, Mar | 18(7) | — | — | |
| *Erythrina* sp. | 118 | H, Mar | 18(7) | — | — | |
| *Mucuna* sp. leaf | 123 | SL, Apr | 19(7) | — | — | |
| (koisahri) dry fruit | | | 28(7) | | | |
| *Desmodium polycarpon* | 142 | SL, May | 1(1) | | | |
| *Cassia alata* | 143 | P, May | 0(0) | | | |
| *Canavalia* sp. | 145 | H, May | 13(7) | | | |
| *Centrosema plumierii* | 153 | M, Jun | 16(7) | — | — | |
| *Centrosema* sp. leaf | 155 | P, Jun | 16(7) | | | |
| fruit | | | 21(7) | | | |
| *Mimosa* cf *invisa* | 158 | G, Jun | 9(6) | — | + | |
| *Tephrosia* cf *noctiflora* | | | | | | |
| leaf | 159 | G, Jun | 14(7) | — | — | |
| fruit | | | 23(7) | | | |
| *Canavalia* sp. | 160 | G, Jun | 17(7) | — | — | |
| *Uraria lagopodioides* | 170 | SL, Jun | 9(6) | — | + | — |
| cf *Derris* | 174 | SL, Jun | 0(0) | | | |
| cf *Desmodium* sp. | 180 | M, Jul | 8(5) | — | — | |
| *Delonix regia* | 187 | H, Jul | 25(7) | | | |
| *Desmodium umbellatum* | 188 | H, Jul | 12(5) | — | | |
| *Intsia bijuga* | 222 | H, Aug | 17(7) | — | — | |
| Unknown | 227 | B, Sep | 13(6) | — | — | |
| cf *Dalbergia* | 229 | G, Sep | 15(7) | — | — | |
| *Crotalaria* sp. | 233 | G, Sep | 20(7) | — | — | |
| Unknown | 236 | B, Sep | 16(7) | | | |
| *Hardenbergia* sp. | 237 | H, Sep | 12(7) | — | — | |
| *Procopis insularium* | 239 | W, Oct | 23(7) | — | — | |
| cf *Derris* | 242 | W, Oct | 15(6) | — | — | |
| *Desmodium umbellatum* | 260 | G, Dec | 16(7) | — | — | |
| *Poinciana gillesii* | 268 | H, Jan | 10(5) | | | |
| *Cassia fistula* | 269 | H, Jan | 16(7) | | | |
| *Cassia siamea* | 277 | H, Apr | 11(6) | — | + | |
| *Lonchocarpus* sp. | 295 | SL, Jan | 5(5) | — | + | |
| LILIACEAE | | | | | | |
| *Cordyline fruticosa* | 167 | SL, Jun | 9(5) | — | + | — |
| *Geitonoplesium cymosum* | 230 | H, Sep | 5(3) | — | — | |
| *Geitonoplesium* sp. leaf | 261 | H, Dec | 7(4) | — | — | |
| green fruits | | | 6(3) | | | |
| *Gloriosa* sp. | 275 | H, Apr | 1(1) | | | |
| *Smilax* sp. | 286 | SL, May | 10(4) | — | — | |

TABLE 1 (*continued*)

| PLANT TESTED | COLLECTION NUMBER | PLACE[1] AND MONTH | ALKALOID SCORE | SAPONINS | | |
|---|---|---|---|---|---|---|
| | | | | WATER | ALKALI | L/B |
| LOGANIACEAE | | | | | | |
| *Strychnos colubrina* (kwalaveko) | 141 | | 10(5) | | | |
| *Fagraea racemosa* | 271 | Giz, Jan | 17(7) | | | |
| LORANTHACEAE | | | | | | |
| *Viscum* sp. | 133 | MtA, Apr | 5(2) | — | — | |
| MALVACEAE | | | | | | |
| Unknown | 107 | G, Mar | 18(7) | — | — | |
| *Urena lobata* | 108 | G, Mar | 8(6) | — | — | |
| *Hibiscus tiliaceus* (hau) | 144 | H, May | 18(7) | — | — | |
| *Sida* cf *rhombifolia* leaf | 250 | CE, Nov | 21(7) | — | — | |
| fruit | | | 8(3) | | | |
| *Triumfetta* sp. | 285 | SL, May | 12(5) | + | — | |
| MELASTOMACEAE | | | | | | |
| *Melastoma polyanthum* | 126 | SL, Apr | 14(7) | — | — | |
| MELIACEAE | | | | | | |
| *Melia azedarach* leaf | 182 | H, Jul | 17(7) | — | — | |
| fruit | | | 11(6) | | | |
| MORACEAE | | | | | | |
| *Antiarias taxicaria* leaf | 117 | H, Mar | 20(7) | — | — | |
| fruit | | | 18(7) | | | |
| *Artocarpus vrieseanus* leaf | 119A | H, Apr | 17(7) | — | | |
| cf *subsessilis* seeds | | | 19(7) | | | |
| *Ficus* sp. (sakwari) | 140 | H, May | 0(0) | — | — | |
| *Artocarpus altilis* (baleo) (rouai) | 146 | H, Jun | 12(7) | — | — | |
| *Ficus* sp. | 191 | Giz, Jul | 6(2) | — | — | |
| *Ficus* sp. | 209 | H, Aug | 3(3) | — | — | |
| *Ficus* sp. | 218 | P, Aug | 12(6) | — | — | |
| *Ficus* sp. | 220 | P, Aug | 2(2) | — | — | |
| MYRISTICACEAE | | | | | | |
| *Myristica* sp. | 150 | M, Jun | 6(4) | — | — | |
| MYRTACEAE | | | | | | |
| *Eugenia malaccensis* | 175 | M, May | 0(0) | — | — | |
| *Psidium guayava* | 266 | Ten, Jan | 1(1) | — | — | |
| *Eugenia tierneyana* leaf | 288 | SL, May | 1(1) | — | — | |
| fruit | | | 9(6) | | | |
| NYCTAGINACEAE | | | | | | |
| *Boerhavia* sp. | 255 | G, Nov | 10(6) | — | — | |
| ORCHIDACEAE | | | | | | |
| Unknown | 184 | MtA, Jul | 22(7) | — | — | |
| Unknown | 199 | W, Aug | 1(1) | | | |
| OXALIDACEAE | | | | | | |
| *Averrhoea carambola* | 193 | Giz, Jul | 1(1) | — | — | |
| PALMAE | | | | | | |
| *Strongylocaryum* sp. (boko) | 138 | P, May | 0(0) | | | |

TABLE 1 (*continued*)

| PLANT TESTED | COLLECTION NUMBER | PLACE[1] AND MONTH | ALKALOID SCORE | SAPONINS | | |
|---|---|---|---|---|---|---|
| | | | | WATER | ALKALI | L/B |
| PASSIFLORACEAE | | | | | | |
| *Passiflora foetida* | 215 | H, Aug | 4(3) | + | + | |
| PIPERACEAE | | | | | | |
| *Piper* sp. | 129 | MtA, Apr | 1(1) | — | — | |
| *Piper* sp. | 139 | P, May | 0(0) | — | — | |
| *Piper* sp. | 177 | M, Jul | 24(7) | — | — | |
| *Piper* sp. | 281 | P, May | 12(7) | — | — | |
| POLYGALACEAE | | | | | | |
| *Polygala paniculata* | 196 | Giz, Jul | 18(7) | + | | |
| RHAMNACEAE | | | | | | |
| *Gouania* sp. | 202 | H, Aug | 2(2) | — | — | |
| RHIZOPHORACEAE | | | | | | |
| *Carallia brachyata* | 231 | P, Sep | 12(5) | — | — | |
| RUBIACEAE | | | | | | |
| *Geophila herbacea* | 131 | MtA, Apr | 1(1) | — | — | |
| *Musseanda* sp. (kwalosanggus) | 134 | MtA, Apr | 4(4) | — | — | |
| *Uncaria* sp. | 148 | M, Jun | 19(7) | — | + | |
| *Morinda citrifolia* | 163 | G, Jun | 7(5) | + | + | |
| *Timonius timon* | 172 | SL, Jun | 4(3) | + | — | purple |
| Unknown | 197 | G, Jul | 4(1) | — | — | |
| cf *Randia* | 217 | P, Aug | 4(2) | + | — | purple |
| *Timonius timon* | 226 | H, Sep | 3(2) | — | — | |
| *Timonius timon* | 243 | W, Oct | 3(1) | — | — | |
| *Timonius timon* | 283 | H, May | 1(1) | — | — | |
| *Boerhavia* sp. | 255 | G, Nov | 10(6) | — | — | |
| *Ixora* sp. | 274 | H, Apr | 18(7) | — | — | |
| RUTACEAE | | | | | | |
| *Evodia* sp. | 221 | P, Aug | 1(1) | — | — | |
| *Micromelam minutum* | 240 | W, Oct | 20(7) | — | — | |
| SAPINDACEAE | | | | | | |
| *Allophylus cobbe* | 120 | SL, Apr | 1(1) | — | — | |
| *Pometia pinnata* | 132 | MtA, Apr | | + | | red/brown |
| *Allophylus cobbe* | 238 | G, Sep | 3(2) | — | — | |
| SMILACEAE | | | | | | |
| *Smilax* sp. (kwala'au or kwalaebo) | | | 8(5) | | | |
| SOLANACEAE | | | | | | |
| *Solanum* sp. leaf | 125 | G, Apr | 15(7) | — | + | nil |
| fruit | | | 15(7) | | | |
| *Capsicum* sp. leaf | 280 | H, May | 28(7) | | | |
| green fruit | | | 19(7) | | | |
| STERCULIACEAE | | | | | | |
| *Kleinhovia hospita* (hai hai) | 114 | H, Mar | 13(6) | + | + | |
| *Melochia umbellata* | 116 | H, Mar | 9(6) | — | — | |
| *Commersonia bartramia* (dandame) | 121 | SL, Apr | 9(6) | — | — | |
| *Kleinhovia hospita* | 127 | G, Apr | 20(7) | — | + | nil |
| *Commersonia bartramia* | 195 | Giz, Jul | 6(5) | — | — | |

TABLE 1 (*continued*)

| PLANT TESTED | COLLECTION NUMBER | PLACE[1] AND MONTH | ALKALOID SCORE | SAPONINS | | |
|---|---|---|---|---|---|---|
| | | | | WATER | ALKALI | L/B |
| TILIACEAE | | | | | | |
| *Triumpheta* sp. | 205 | H, Aug | 0(0) | — | | |
| URTICACEAE | | | | | | |
| *Procris* sp. | 130 | MtA, Apr | 2(2) | — | — | |
| *Pipturis argentius* | 178 | M, Jul | 6(5) | — | — | |
| *Elatostemma* sp. | 219 | P, Aug | 15(7) | — | — | |
| *Pipturis argentius* | 201 | W, Aug | 7(3) | — | — | |
| VERBENACEAE | | | | | | |
| *Vitex* sp. | 106 | G, Mar | 5(4) | — | — | |
| *Stachytarpheta jamaicensis* | 110 | G, Mar | 15(5) | — | — | |
| *Clerodendron* sp. (teterau) | 124 | T, Apr | 24(7) | | | |
| *Premna corymbosa* | 165 | G, Jun | 5(2) | — | — | |
| *Premna corymbosa* | 194 | Giz, Jul | 11(6) | — | — | |
| *Vitex negundo* leaf | 254 | G, Apr | 12(4) | — | — | |
| bark | | | 9(4) | | | |
| *Tectona grandis* | 267 | H, Jan | 20(7) | + | — | |
| *Gmelina arborea* | 272 | H, Mar | 15(7) | — | + | |
| VITACEAE | | | | | | |
| *Leea* sp. leaf | 113 | H, Mar | 3(1) | — | — | |
| (bora bora) fruit | | | 2(2) | | | |
| *Cayritia* sp. | 207 | H, Aug | 2(2) | — | — | |
| *Cayritia* sp. | 224 | H, Aug | 10(7) | — | — | |
| *Leea* sp. | 245 | W, Oct | 3(3) | — | — | |
| ZINGIBERACEAE | | | | | | |
| *Tapeinochilus* sp. | 185 | MtA, Jul | 15(7) | — | — | |

[1] Abbreviations used for places: P–Poha River, Guadalcanal; SL–Skyline Rd., Guadalcanal; MtA–Mount Austen; H–Honiara; G–Guadalcanal Island; M–Matanikau River, Guadalcanal; T–Tetare; B–Benigi; W–White River, Guadalcanal; CE–Cape Esperance; V–Visale; Giz–Gizo Island; Auk–Auki, Malaita Island; Ten–Tenaru.

*Saponins*

For convenience, results of the tests for saponins have been included in Table 1 under three headings:

Water Alkali L/B

In the water and alkali columns, "+" means froth lasting for more than 30 minutes, and "—" indicates either no froth at all or froth having a persistence of less than 30 minutes. A blank in any column indicates that no test was done. In the L/B column the colour obtained is given. Blues are suggestive of steroids, whereas reds suggest triterpenoids.

## SUMMARY AND DISCUSSION

The number of families represented by the specimens tested is 54 (within the limits of identification available).

*Alkaloids*

The following 32 families contain species which give positive tests for alkaloids. In this assessment, any score considered marginal has been recorded as positive. However, families represented by only one species have not been included unless the test is clearly positive. The first figure is the number of samples found positive, and the second figure is the number tested.

| | |
|---|---|
| Acanthaceae | 5/5 |
| Amarantaceae | 2/2 |
| Apocyanaceae | 2/5 |
| Aracaceae | 1/1 |
| Aristolochiaceae | 1/2 |
| Boraginaceae | 1/3 |
| Combretaceae | 1/2 |
| Compositae | 2/7 |

| | |
|---|---|
| Cucurbitaceae | 1/2 |
| Dioscoraceae | 1/2 |
| Euphorbiaceae | 9/18 |
| Flagellariaceae | 1/1 |
| Labiatae | 1/2 |
| Lauraceae | 2/2 |
| Leguminosae | 23/30 |
| Loganiaceae | 2/2 |
| Malvaceae | 4/5 |
| Melastomaceae | 1/1 |
| Meliaceae | 1/1 |
| Moraceae | 4/8 |
| Nyctaginaceae | 1/1 |
| Orchidaceae | 1/2 |
| Piperaceae | 2/4 |
| Polygalaceae | 1/1 |
| Rubiaceae | 2/11 |
| Rutaceae | 1/2 |
| Solanaceae | 2/2 |
| Sterculiaceae | 4/5 |
| Urticaceae | 1/4 |
| Verbenaceae | 6/8 |
| Vitaceae | 1/4 |
| Zingiberaceae | 1/1 |

It would be of value to tabulate on a percentage basis the positive alkaloid families. However, the number of species sampled per family is too small in some cases to permit this and could only lead to erroneous interpretations.

Similarly, a table to show, in descending order, the number of good alkaloidal species would also be misleading. This would show Leguminosae as the most promising whereas, in point of fact, species of Leguminosae were most prolific and easily collected.

However, one may be permitted the statistic that 58% of all families tested were alkaloid positive. This, of course, may only mean that the author was fortunate in collecting such specimens, and does not necessarily represent the ratio of alkaloidal to non-alkaloidal plants on Guadalcanal.

*Saponins*

The number of families represented by the specimens tested is 48 (within the limits of identification available).

The following 21 families contain species which gave positive tests for saponins. The first figure is the number of positives obtained (including L/B positives), and the second figure is the number of specimens tested in each family.

| | |
|---|---|
| Acanthaceae | 1/5 |
| Amarantaceae | 1/2 |
| Apocyanaceae | 1/5 |
| Araliaceae | 1/3 |
| Boraginaceae | 1/3 |
| Compositae | 2/6 |
| Cucurbitaceae | 1/2 |
| Dioscoraceae | 2/2 |
| Euphorbiaceae | 5/15 |
| Goodeniaceae | 1/2 |
| Labiatae | 1/2 |
| Leguminosae | 4/21 |
| Liliaceae | 1/4 |
| Malvaceae | 1/5 |
| Passifloraceae | 1/1 |
| Polygalaceae | 1/1 |
| Rubiaceae | 4/11 |
| Sapindaceae | 1/2 |
| Solanaceae | 1/1 |
| Sterculiaceae | 1/3 |
| Verbenaceae | 2/6 |

Of the total families tested for saponins, 42% gave a positive result either from water or alkali or the L/B test. In some cases the L/B test failed to show any colour, and these have been recorded as negative. In one case only (Apocyanaceae) was the L/B test positive when both the water and the alkali froth tests were negative.

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